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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/264,547	03/08/1999	TIMOTHY N. JONES	09943/006001	3355

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EXAMINER
WILSON, JOHN J

ART UNIT	PAPER NUMBER
3732	

DATE MAILED: 08/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/264,547	Applicant(s) JONES ET AL.	
	Examiner John J. Wilson	Art Unit 3732	

The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-120* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20-26,100-113,116 and 117* is/are allowed.

6)☒ Claim(s) *1-19,27-99,114,115 and 118-120* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 7-9, 11-17, 19, and 27-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al (5338198) in view of Andreiko et al (5683243) and Yoon et al (5742700). Wu shows scanning and receiving a 3D data set, finding a component and creating a model of the component using segmentation, column 7, lines 7-10. Wu does not show scanning a model. Andreiko teaches that it is known to obtain data from a model. It would be obvious to one of ordinary skill in the art to modify Wu to include scanning a model as shown by Andreiko. Wu does not show producing a plurality of digital data sets representing an initial to a successive tooth arrangement. Andreiko shows a initial data set with the data that is collected and shows a successive data set, in this case a final set. It would be obvious to one of ordinary skill in the art to modify Wu to include producing data sets as taught by Andreiko in order to move the teeth to the desired locations. During the building of a digital model from scanned data, the computer automatically applies tests to the incoming data to build the digital model, as an example see column 8, lines 6-15 of Wu. The segmentation taught by Wu inherently teaches identifying elements or components. Wu does not specifically state segmenting by boundary points. Yoon teaches that it is known to segment by boundary points, Fig. 3, including both automatic and manual segmentation. It would be obvious to one of ordinary skill in the art to modify Wu to include segmenting components using

boundary segmentation as taught by Yoon in order to better manipulate the desired regions. To use well known computer graphic tools for this manipulation is an obvious matter of choice in the use of known tools for a known result to one of ordinary skill in the art. As to claim 75, Wu teaches a 3D data set, however, does not show selecting based on an interproximal margin. Andreiko (243) teaches extracting the spacing between teeth. It would be obvious to one of ordinary skill in the art to modify Wu to include using the margins to manipulate data as shown by Andreiko (243) in order to better manipulate the desired regions. That the scanned data can be stored as a 3D volumetric representation is an obvious matter of choice in known imaging to one of ordinary skill in the art. The specific mathematical algorithm used to find the desired portion is an obvious matter of choice in known algorithms for segmentation of data to one of ordinary skill in the art. Yoon also teaches isolating a tooth, see 94 in Fig. 3B and column 5, lines 30-40. It would be obvious to one of ordinary skill in the art to modify the above combination to include segmenting a tooth as suggested by Yoon in order to isolate the area it is desired to work with. To use automated calculations is an obvious matter of choice in known alternative as shown by the art to the skilled artisan.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Yoon et al as applied to claim 1 above and further in view of Poirier. Wu shows the steps described above, however, Wu does not show the use of X-ray or MRI to obtain data. Poirier teaches obtaining data using X-rays or an MRI, column 3, lines 12-20. It would be obvious to one of ordinary skill in the art to modify the above combination to include using X-rays or an MRI as shown by Poirier in order to make use of art known ways to best gather needed data.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Yoon et al as applied to claim 1 above and further in view of Andersson. Wu shows the steps described above, however, does not show data taken from a photographic image. Andersson teaches taking data from an image, column 2, lines 57-60. It would be obvious to one of ordinary skill in the art to modify the above combination to include using a photographic image as shown by Andersson in order to make use of art known ways to best gather needed data.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Yoon et al as applied to claim 1 above, and further in view of Brandestini et al. Wu shows the steps described above, however, does not show data from directly imaging teeth. Brandestini teaches taking data from directly imaging teeth, column 2, lines 33-36. It would be obvious to one of ordinary skill in the art to modify the above combination to include using direct imaging as shown by Brandestini in order to make use of art known ways to best gather needed data.

Claims 10, 18, 98, 99, 114, 115 and 118-120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Andreiko et al (243) and Yoon et al as applied to claim 1 above, and further in view of Andreiko et al (5395238). Wu shows the steps described above, however, does not show the segment being gum tissue. Andreiko (238) teaches data for the gums, see Abstract. It would be obvious to one of ordinary skill in the art to modify the above combination to include gum tissue as a component as shown by Andreiko (238) in order to treat the desired area of the mouth. The specific mathematical algorithm used to find the desired portion is an obvious

matter of choice in known algorithms for segmentation of data to one of ordinary skill in the art.

Claims 1-5, 7-19 and 27-97 are rejected under 35 U.S.C. 103(a) as being obvious over Chrishti et al (5975893) in view of Wu et al (5338198) and Yoon et al (5742700).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Chrishiti teaches scanning, applying test, creating a digital model and producing a plurality of successive data sets. Chrishiti does not show using segmentation and boundary points. Wu shows scanning and receiving a 3D data set, finding a component and creating a model of the component using segmentation, column 7, lines 7-10. During the building of a digital model from scanned data, the computer automatically applies tests to the incoming data to build the digital model, as an example see column 8, lines 6-15 of Wu. The segmentation taught by Wu inherently teaches identifying elements or components. Yoon teaches that it is known to segment by boundary points, Fig. 3, including both automatic and manual segmentation. It would be obvious to one of ordinary skill in the art to modify Chrishti to include segmenting components as shown by Wu and using boundary segmentation as taught by Yoon in order to better manipulate the desired regions.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chrishti et al in view of Wu et al and Yoon et al as applied to claim 1 above, and further in view of Brandestini et al. Wu shows the steps described above, however, does not show data from directly imaging teeth. Brandestini teaches taking data from directly imaging teeth, column 2, lines 33-36. It would be obvious to one of ordinary skill in the art to modify the above combination to include using direct imaging as shown by Brandestini in order to make use of art known ways to best gather needed data.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19 and 27-97 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 5,975,893 in view of Wu et al (5338198) in view of Yoon et al (5742700). The claims of the '893 patent teach scanning, applying a test, creating a digital model and producing a plurality of successive data sets, however do not show using segmentation and boundary points. Wu shows scanning and receiving a 3D data set, finding a component and creating a model of the component using segmentation, column 7, lines 7-10. During the building of a digital model from scanned data, the computer automatically applies tests to the incoming data to build the digital model, as an example see column 8, lines 6-15 of Wu. The segmentation taught by Wu inherently teaches identifying elements or components. Yoon teaches that it is known to segment by boundary points, Fig. 3, including both automatic and manual segmentation. It would be obvious to one of ordinary skill in the art to modify the claims of the '893 patent to

include segmenting components as shown by Wu and using boundary segmentation as taught by Yoon in order to better manipulate the desired regions. To use X-rays or a photographic image is an obvious matter of choice in known imaging techniques to the skilled artisan. To include imaging gum tissue is an obvious matter of choice in the specific area that is imaged to one of ordinary skill in the art.

Allowable Subject Matter

Claims 20-26, 100-113, 116 and 117 are allowed.

Response to Arguments

Applicant's arguments filed February 20, 2002 have been fully considered but they are not persuasive. The new claim language "from an initial tooth arrangement to a successive tooth arrangement reads on initial and final tooth arrangements which are held to be inherently shown by the prior art.

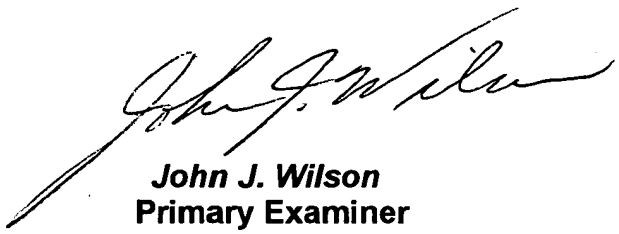
Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to John Wilson at telephone number (703) 308-2699.



John J. Wilson
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Art Unit 3732

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August 21, 2002
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